

CLAIMS

1. A vest for applying repetitive pressure pulses to the front of the thorax of a person comprising: a cover having a front panel, a back panel and shoulder portions connecting the front panel to the back panel and an opening between said panels to allow the vest to be placed over a person's head and around the thorax of the person, releasable fasteners attached to the front and back panels operable to retain the vest around the thorax of the person, a bladder having an inner wall and an outer wall, means securing the inner wall to said front panel of the cover, said bladder having an air chamber between said inner and outer walls, an air receiving passage along a lower portion of the bladder for receiving pressurized air and air pressure pulses, openings between said inner and outer walls allowing air to flow from the air passage into the air chamber, an open member located in said air receiving passage for allowing air to flow in said passage and through said openings into the air chamber, and at least one hole in the outer wall for allowing air to flow out of the air chamber.
2. The vest of Claim 1 wherein: said cover is a one-piece sheet member.
3. The vest of Claim 1 wherein: said cover has opposite side edges, each of said edges having a concave portion.
4. The vest of Claim 1 wherein: said back panel has flaps on opposite sides thereof, said releasable fasteners having first members attached to the flaps, and second members attached to the front panel, said first and second members cooperating with each other to secure the flaps to the front panel.
5. The vest of Claim 4 wherein: the first and second members are hook and loop fasteners.

6. The vest of Claim 1 wherein: bottom portions of the inner and outer walls have a plurality of spaced seals joining said walls, and spaces between the seals being open to provide said openings to allow air and air pressure pulses to flow upwardly from the air receiving passage into said air chamber.

7. The vest of Claim 6 including: spacer means secured to one of said walls extended through said spaces between the seals to maintain said openings open.

8. The vest of Claim 7 wherein: said spacer means comprise loop pads secured to one of said walls.

9. The vest of Claim 1 wherein: said open member located in said air receiving passage is a flexible coil spring extended along the length of the air receiving passage.

10. The vest of Claim 1 including; a plurality of holes in the outer wall to allow air to flow out of the air chamber.

11. The vest of Claim 10 including: upright seals securing the inner and outer walls together located adjacent said holes.

12. The vest of Claim 1 including: upright rows of holes in the outer wall to allow air to flow out of the air chamber.

13. The vest of Claim 1 including: upright seals securing the inner and outer walls together located between the upright rows of holes.

14. The vest of Claim 1 wherein: said bottom portions of the inner and outer walls have a plurality of horizontal spaced first seals and upright second seals joined to the first seals joining the inner and outer walls, the space between the first seals being open to provide air flow passages open to said air chamber and air receiving passage to allow air to flow upwardly from

the air receiving passage into said air chamber, and holes in said outer wall adjacent said upright seals to allow to flow out of the air chamber.

15. The vest of Claim 14 including: spacer means secured to one of said walls extended through said spaces between the seals to maintain said passages open.

16. The vest of Claim 15 wherein: said spacer means comprise loop pads secured to one of the walls.

17. A vest for applying repetitive pressure pulses to the front of the thorax of a person comprising: a one-piece non-elastic cover having a flat front panel with an inside surface, a back panel and shoulder members connecting the front panel to the back panel and an opening between said panels to allow the vest to be placed over a person's head and around the thorax of the person, said back panel having outwardly extended flaps on opposite sides thereof, releasable fasteners attached to the flaps and front panel operable to retain the vest around the thorax of the person, a bladder having an inner wall and a flexible outer wall, means securing the inner wall to the inside surface of the front panel, said bladder having an air chamber and an air receiving passage below said air chamber, said inner and outer walls having opposite sides and bottom portions, a plurality of horizontal laterally spaced seals securing the inner walls to the outer walls and separating the air receiving passage from the air chamber, said seals being spaced from each other and spaced from the opposite sides of the walls to provide openings between the air receiving passage and air chamber, an elongated coil spring located in the air receiving passage for allowing air to flow in the air receiving passage and through the openings into the air chamber, and holes in the outer wall for allowing air to flow out of the air chamber.

18. The vest of Claim 17 wherein: the releasable fasteners have first members attached to the flaps, and second members attached to the front panel, said first and second members cooperating with each other to secure the flaps to the front panel.

19. The vest of Claim 18 wherein: the first and second members are hook and loop fasteners.

20. The vest of Claim 17 including: spacers secured to one of said walls extended through said openings to maintain said openings open to ensure air flow between the air receiving passage and air chamber.

21. The vest of Claim 20 wherein: the spacers comprise loop pads secured to one of said walls.

22. The vest of Claim 17 including: upright seals joined to the horizontal seals securing inner and outer walls together.

23. The vest of Claim 22 wherein: said holes in the outer wall comprise upright rows of holes located adjacent said upright seals to allow air to flow out of the air chamber.

24. A bladder for a vest for applying repetitive pressure pulses to the front of the thorax of a person comprising: air impervious walls surrounding an air chamber and an air receiving passage, said wall including an inner wall and an outer wall, openings between said inner and outer walls allowing air to flow from the air receiving passage and said air chamber, an open member located in said air receiving passage to allow air to flow in said passage and through said openings into said chamber, and at least one hole in the outer wall to allow air to flow out of the chamber.

25. The bladder of Claim 24 wherein: bottom portions of the inner and outer walls have a plurality of spaced seals joining said walls, and spaces between the seals being open to provide

said openings to allow air and air pressure pulses to flow upwardly from the air receiving passage into said air chamber.

26. The bladder of Claim 25 including: spacers secured to one of said walls extended through said spaces between the seals to maintain said openings open to ensure air flow between the air receiving passage and air chamber.

27. The bladder of Claim 26 wherein: said spacers comprise loop pads secured to one of said walls.

28. The bladder of Claim 24 wherein: said open member located in said air receiving passage is a flexible coil spring extended along the length of the air receiving passage.

29. The bladder of Claim 24 including; a plurality of holes in the outer wall to allow air to flow out of the air chamber.

30. The bladder of Claim 29 including: upright seals securing the inner and outer walls together located adjacent said holes.

31. The bladder of Claim 24 including: upright rows of holes in the outer wall to allow air to flow out of the air chamber.

32. The bladder of Claim 31 including: upright seals securing the inner and outer walls together located between the upright rows of holes.

33. The bladder of Claim 24 wherein: said bottom portions of the inner and outer walls have a plurality of horizontal spaced first seals and upright second seals joined to the first seals joining the inner and outer walls, the space between the first seals being open to provide air flow passages open to said air chamber and air receiving passage to allow air to flow upwardly from the air receiving passage into said air chamber, and holes in said outer wall adjacent said upright seals to allow to flow out of the air chamber.

34. The bladder of Claim 33 including: spacer means secured to one of said walls extended through said spaces between the seals to maintain said passages open.

35. The bladder of Claim 34 wherein: said spacer means comprise loop pads secured to one of the walls.

36. A bladder for a vest for applying repetitive pressure pulses to the front of the thorax of a person comprising: an air impervious wall surrounding an air chamber and an air receiving passage having an open end providing an air inlet to the air receiving passage, said wall including an inner wall and a flexible outer wall, said inner and outer walls having opposite sides and bottom portions, a plurality of horizontal laterally spaced seals securing the inner wall to the outer wall and separating the air receiving passage from the air chamber, said seals being spaced from each other and spaced from the opposite sides of the walls to provide openings between the air receiving passage and the air chamber, and an elongated coil spring located in the air receiving passage for allowing air to flow in the air receiving passage and through the openings into the air chamber.

37. The bladder of Claim 36 including: spacers secured to one of said walls extended through said openings to maintain said openings open to ensure air flow between the air receiving passage and air chamber.

38. The bladder of Claim 37 wherein: the spacers comprise loop pads secured to one of said walls.

39. The bladder of Claim 36 including: a plurality of holes in the outer wall to allow air to flow out of the air chamber.

40. The bladder of Claim 36 including: upright seals joined to the horizontal seals securing inner and outer walls together.

41. The bladder of Claim 40 including: upright rows of holes in the outer wall located adjacent said upright seals to allow air to flow out of the air chamber.